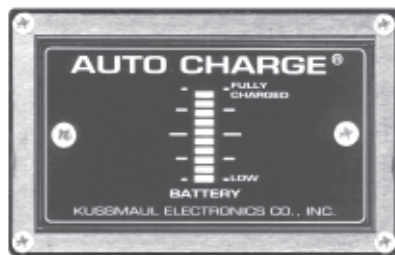


INSTRUCTION MANUAL

AUTO CHARGE 1000

AUTOMATIC BATTERY CHARGER



MODEL # 091-56-12

INPUT : 115 volt, 50/60 Hz, 3.5 amps

OUTPUT: 15 AMPERES

3 YEAR WARRANTY



KUSSMAUL ELECTRONICS CO., INC.

170 CHERRY AVE., WEST SAYVILLE, N.Y. 11796

Phone: 631-567-0314

Toll Free: 800-346-0857

Fax: 631-567-5826

Web: www.kussmaul.com

E-Mail: sales@kussmaul.com

Introduction

The AUTO CHARGE 1000 is a compact, completely automatic, single channel battery charger designed for vehicles with a single battery system. The charger is ruggedized to withstand the shock and vibration encountered by vehicle mounted equipment.

The battery charger features:

- Electronic remote sensing of true battery voltages, eliminates the need for sensing wires
- Automatic current limiting
- Built-in BATTERY SAVER
- Remote battery charge/condition indicator
- Power "ON" LED indicator
- BATTERY SAVER overload indicator

Charge Controls & Electronic Remote Sensing

The Auto Charge 1000 contains a precision voltage controller to maintain the battery's charge. Automatic electronic remote sensing measures the true battery voltage, eliminating the need for the additional sense wires. The output current of any charger is inherently a series of pulses whose frequency is determined by the power line frequency. Therefore there are brief intervals during which no charging current flows. During this brief interval the Auto Charge 1000 measures and stores the battery voltage. This battery voltage is compared to a standard and any error is detected and used to control the charger output at the desired level. There is no "trickle charge" and therefore no danger of overcharging and water boil-off.

Automatic Current Limiting

When batteries are severely discharged, some battery chargers can be overloaded due to the high charging current required. The Auto Charge 1000 contains an automatic current limit. This circuit limits the output current to the rated 15 amperes when charging a deeply discharged battery or if the starter cranks the engine while charging. The current limiter thus eliminates the need for an ignition interlock circuit.

Battery Saver & Indicator

A 3 ampere BATTERY SAVER is built into the charger. When connected as shown in the installation wiring diagram, loads on the battery such as radios and rechargeable hand lights are automatically switched to the BATTERY SAVER when power is applied to the charger. The BATTERY SAVER allows more efficient charging by removing these loads. A BATTERY SAVER overload indicator alerts the operator that the BATTERY SAVER load has exceeded 3 amperes.

WHEN A BATTERY SAVER OVERLOAD OCCURS:

- a. Remove the loads for approximately two minutes
- b. Reduce the load to 3 amperes or less
- c. Reapply the load to the BATTERY SAVER

No fuses are required or provided as the BATTERY SAVER contains an electronic overload interrupter.

Remote Battery Charge Condition Indicator

This remote indicator shows the charge condition of the battery in 10 levels from "LOW CHARGE" to "FULLY CHARGED". This device indicates a defective battery when a bar graph does not rise to the "FULLY CHARGED" level after an extended period of charging.

NOTE: If a battery is being discharged with an external load of 1.5 to 4 amperes across its terminals, the bar graph may move down 1 or 2 levels. This does not indicate a defective battery.

To avoid this, connect all external loads to the BATTERY SAVER terminals.

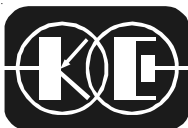
Loads connected to the BATTERY SAVER will be powered either from the BATTERY SAVER power supply when the A.C. power is "ON", or they will be connected to the battery when the A.C. power is "OFF".

CAUTION

This battery saver output is a full wave rectified sine wave. The 12.5 volts D.C. has a peak value of approximately 17.5 volts.

It is recommended that the loads are not highly capacitive. A large capacitor on the load terminal will "peak detect" the output and create a voltage of approximately 17 volts. This voltage may be too high for the component connected.

It is suggested that the installed check the output of the battery saver (when operating with A.C. input) and determine as each load is connected that the voltage does not rise. Any load that creates an increase in voltage should not be connected to the battery saver but rather be connected directly to the battery.



SINCE 1967, DESIGNERS OF INNOVATIVE PRODUCTS

KUSSMAUL ELECTRONICS COMPANY, INC.

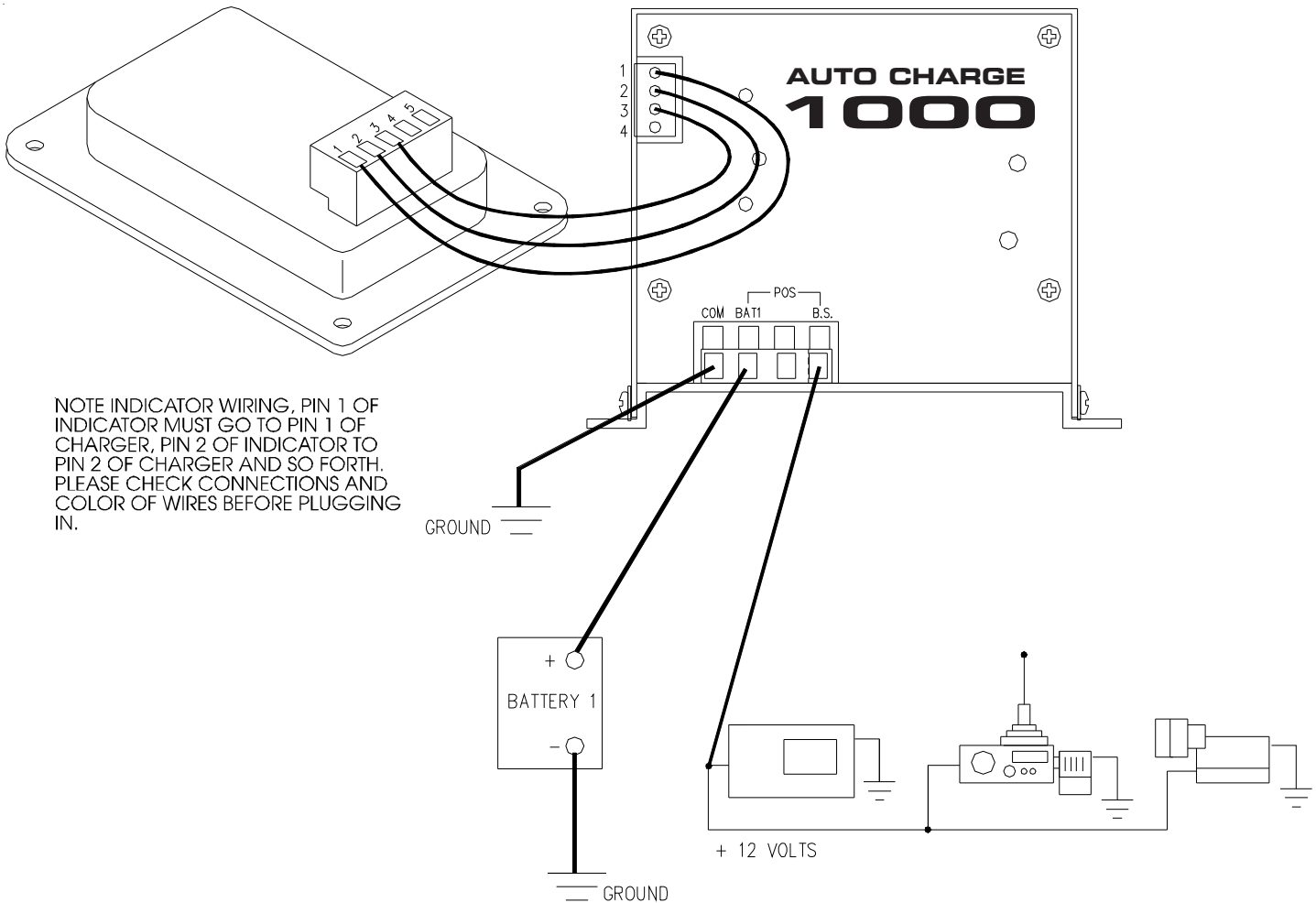
170 CHERRY AVENUE, WEST SAYVILLE, NEW YORK, 11796-1221 USA

TEL. In NY: 631 567-0314

TOLL FREE: 800 346-0857

FAX: 631 567-5826

Installation Wiring Diagram



Battery Saver Loads (3 amps max.).
 When the charger is disconnect from 120 volts AC the Battery Saver loads automatically are connected to the battery.

WIRE SIZE CHART			
CONNECTION	ITEM	DEFINITION	WIRE SIZE
COM	BATTERY COMMON	NEGATIVE CHARGING LEAD FOR CHARGING BATTERIES AND BATTERY SAVER LOAD	14 AWG
BAT 1	BATTERY	POSITIVE CHARGING LEAD FOR BATTERY	14 AWG
B.S.	BATTERY SAVER	POSITIVE LEAD FOR BATTERY SAVER LOADS.	16 AWG

IMPORTANT : Wire size is for a maximum length of 10 feet. If wiring is to be longer, larger wiring is required. Additional information is available on request.

Specifications:

Input: 120 volt, 50/60 Hz, 3.5 amperes

Input Fuse: 6 ampere, fast acting

Output: 12 volts D.C. 15 amperes Max.

Output Fuse (Optional): 30 amperes

Remote Sensing: Electronic, sense wires not required

Number of Charger Outputs: 1

Number of Battery Saver Outputs: 1

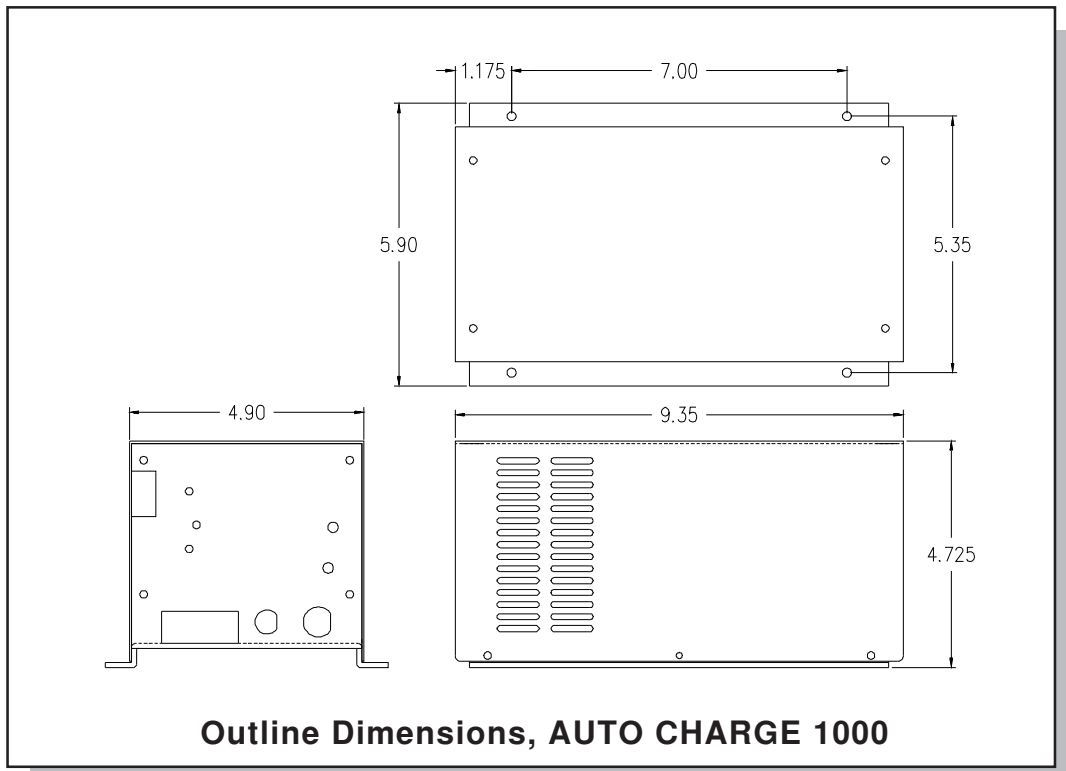
Battery Saver Output: 12 volts D.C., 3 amperes Max.

Indicators: Power: Red LED, indicates 120 volts power applied

Battery Saver Overload: Yellow LED, indicates Battery Saver load greater than 3 amperes

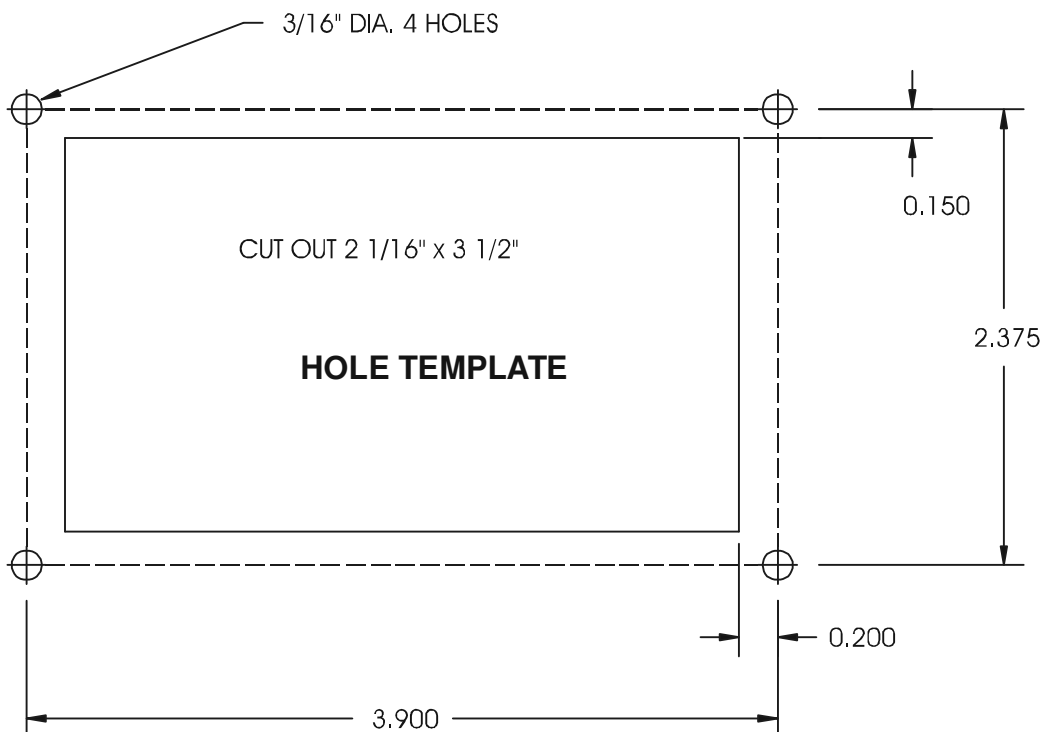
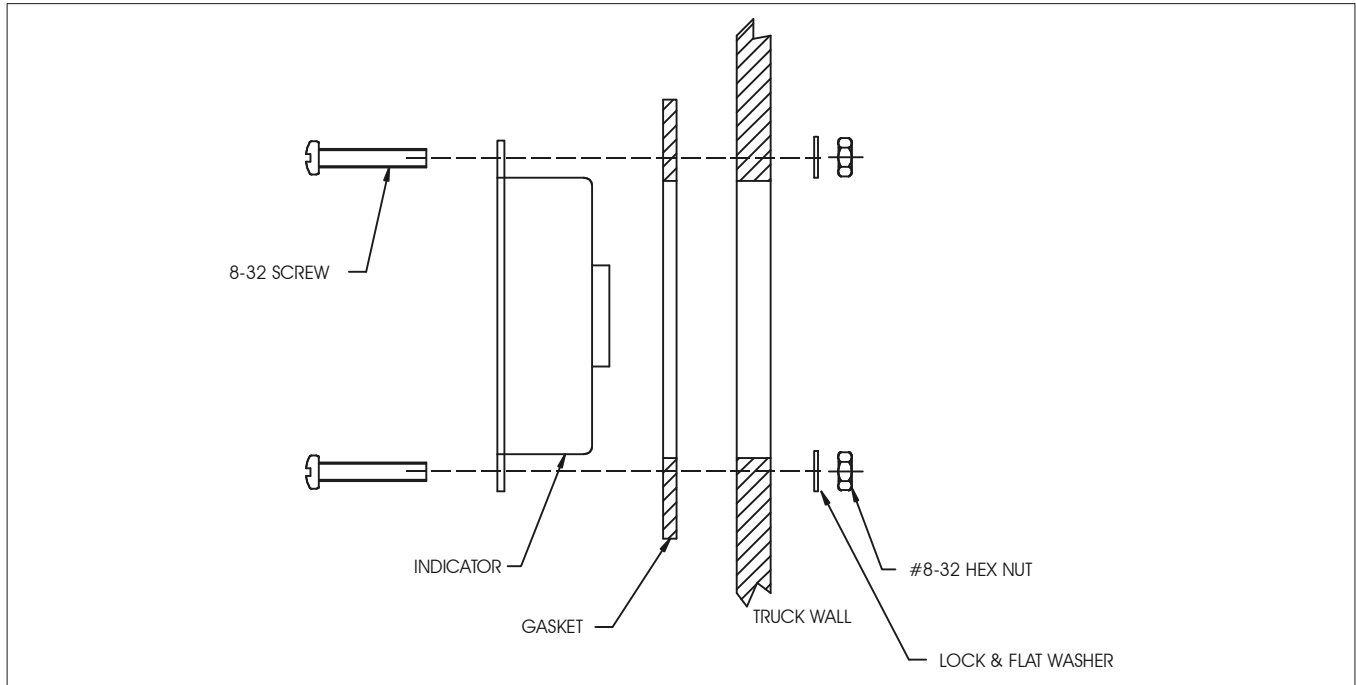
Bar Graph: indicates charger output and state of charge of battery

Weight: 16 lbs



INDICATOR INSTALLATION

1. Locate Indicator in a convenient place on the vehicle.
2. Place the template in position and center punch in 4 places.
3. Drill holes as shown.
4. Cut out square hole.
5. Connect wiring to charger in accordance with the instructions in the charger installation instructions.
6. Install as shown.
7. Insert (4) #8-32 screws supplied and tighten. (**CAUTION: Do not over tighten because you will bend the plastic bezel and break the watertight seal).**



Hole Template may not be to Scale, please check dimensions before using.

INSTALLATION RECORD & WARRANTY

Date Installed _____

Installed By _____

Vehicle Identification _____

Vehicle Owner _____

WARRANTY

All products of Kussmaul Electronics Company Inc. are warranted to be free of defects of material or workmanship. Liability is limited to repairing or replacing at our factory, without charge, any material or defects which become apparent in normal use within 3 years from the date the equipment was shipped. Equipment is to be returned, shipping charges prepaid and will be returned, after repair, shipping charges paid.

Kussmaul Electronics Company, Inc. shall have no liability for damages of any kind to associated equipment arising from the installation and /or use of the Kussmaul Electronics Company, Inc. products. The purchaser, by the acceptance of the equipment, assumes all liability for any damages which may result from its installation, use or misuse, by the purchaser, his or its employees or others.